ENVIRONMENTAL CHEMISTS

Date of Report: August 21, 1996 Date Received: August 15, 1996

Project: Metro Self Monitor, PO #M54226 Date Samples Extracted: August 16, 1996 Date Extracts Analyzed: August 20, 1996

RESULTS FROM THE ANALYSIS OF THE PROCESS WATER SAMPLE FOR CHROMIUM, COPPER, NICKEL, AND ZINC USING METHOD 6010

Samples Processed Using Method 3005A Results Reported as mg/L (ppm)

 Sample ID
 Chromium
 Copper
 Nickel
 Zinc

 M54226
 0.22
 0.23
 0.19
 <0.05</td>

 Method Blank
 <0.05</td>
 <0.05</td>
 <0.05</td>
 <0.05</td>

ENVIRONMENTAL CHEMISTS

Date of Report: August 21, 1996 Date Received: August 15, 1996

Project: Metro Self Monitor, PO #M54226

QUALITY ASSURANCE RESULTS FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Laboratory Code: 71643 (Duplicate)

| | Reporting | Sample | Duplicate | Relative Percent | Acceptance |
|----------|--------------|--------|-----------|---------------------|-----------------|
| Analyte: | Units | Result | Result | Difference | <u>Criteria</u> |
| Chromiu | n mg/L (ppm) | 0.22 | 0.23 | 4 | 0-20 |
| Copper | mg/L (ppm) | 0.23 | 0.23 | 0 | 0-20 |
| Nickel | mg/L (ppm) | 0.19 | 0.20 | 5 | 0-20 |
| Zinc | mg/L (ppm) | <0.05 | <0.05 | nm | 0-20 |

Laboratory Code: 71643 (Matrix Spike)

| Analyte: | Reporting Units | Spike Level | Sample Result | %] MS | Recovery MSD | Acceptanc Criteria | Relative e Percent Difference |
|----------|--------------------|----------------|------------------|-----------|-----------------|-----------------------|-------------------------------------|
| Chromiun | n mg/L (ppm) | 5 | 0.22 | 97 | 100 | 80-120 | 3 |
| Copper | mg/L (ppm) | 5 | 0.23 | 95 | 97 | 80-120 | 2 |
| Nickel | mg/L (ppm) | 10 | 0.19 | 94 | 96 | 80-120 | 2 |
| Zinc | mg/L (ppm) | 5 | < 0.05 | 94 | 97 | 80-120 | 3 |

Laboratory Code: Spike Blank

| | Reporting | Spike | % Re | covery | Acceptance | Relative e Percent |
|----------|------------|-------|------|--------|------------|-----------------------|
| Analyte: | Units | Level | MS | MSD | Criteria | Difference |
| | | | | | | Miles Allen |
| Chromium | mg/L (ppm) | 5 | 101 | 103 | 80-120 | 2 |
| Copper | mg/L (ppm) | 5 | 97 | 97 | 80-120 | 0 |
| Nickel | mg/L (ppm) | 10 | 99 | 100 | 80-120 | 1 |
| Zinc | mg/L (ppm) | 5 | 99 | 100 | 80-120 | 1 |

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

FRIEDMAN & BRUYA, INC. 3012 16th Avenue West Seattle, WA 98119-2029 (206) 285-8282

SAMPLE CHAIN OF CUSTOD

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FORMS/COC

06/25/96

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D Beth M. Albertson, M.S. Bradley T. Benson Kelley D. Wilt 3012 16th Avenue West Seattle, WA 98119-2029 TEL: (206) 285-8282 FAX: (206) 283-5044

August 21, 1996

INVOICE # 96ACU0821-2 DUPLICATE COPY

Accounts Payable Alaskan Copper Works 628 South Hanford Seattle, WA 98134

RE: Project Metro Self Monitor, PO #M54226: Results of testing requested by Gerry Thompson, Project Manager for material submitted on August 15, 1996.

| 1 process water sample analyzed for | |
|-------------------------------------|----------|
| Chromium, Copper, Nickel, and Zinc | |
| using Method 6010 @ \$65 per sample | \$ 65.00 |
| | |
| Amount Due | \$ 65.00 |

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D Beth M. Albertson, M.S. Bradley T. Benson Kelley D. Wilt 3012 16th Avenue West Seattle, WA 98119-2029 TEL: (206) 285-8282 FAX: (206) 283-5044

August 21, 1996

Gerry Thompson, Project Manager Alaskan Copper Works 628 South Hanford Seattle, WA 98134

Dear Mr. Thompson:

Enclosed are the results from the testing of material submitted on August 15, 1996 from your Metro Self Monitor, PO #M54226 project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kurt Johnson

Chemist

keh

Enclosures ACU0821R.DOC